101 Non-tuberculous mycobacterial infection in a large paediatric cystic fibrosis centre: epidemiology and possible transmission event

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Objectives: To identify evidence of possible patient to patient transmission of Non-Tuberculous Mycobacterial (NTM) infection among paediatric CF patients in a large tertiary CF centre.
Methods: All positive isolates of NTM in paediatric CF patients from 2010 onwards were identified using VNTR (variable number tandem repeat) typing, rpoB and hsp65 gene sequencing. The isolates have also been sent for whole genome sequencing. Three individuals isolated *Mycobacterium abscessus* with identical VNTR profiles. A limited network analysis of hospital contacts was then undertaken. Clinical and demographic data were collected from patient records.
Results: 12 patients were identified (7 male, median age 11), giving a prevalence of 6%. Isolates included *M. abscessus* (8 isolates), *M. bolletii* (1), *M. massiliense* (2) and *M. chelonae* (1). 50% of patients in our service with poor lung function (FEV1 below 70% predicted) were NTM positive. Increased frequency of intravenous antibiotic courses ($p = 0.03$) was significantly associated with NTM infection, although whether this relationship is causal remains uncertain.
Basic network analysis of the three cases with identical VNTR profiles identified an inpatient or outpatient contact with the index case with in the six week period prior to the first positive culture, raising the possibility of person to person transmission.
Conclusion: Although we have identified a possible transmission event, the VNTR profiles of other isolates appear diverse suggestive of sporadic environmental acquisition. We have instituted infection control measures including complete segregation, separate in-patient unit and barrier nursing.

102 Fungal colonization in the airways of Spanish cystic fibrosis patients: results from a multicenter study

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Objectives: To describe the fungal isolates recovered from respiratory samples of CF-patients during a national multicenter study (March–Nov, 2013).
Methods: 13 adult and 11 paediatric CF-Units from 17 Spanish Hospitals participated in the study. Each Unit collected respiratory samples and clinical data of 15 non-selected consecutive patients. Samples were stored (–80ºC) and sent to our center for culture in selective-differential media and identification (microscopy, MALDI-TOF MS) for fungi.
Results: Fungal isolates were obtained from 40% (136/340) patients [40% males; median age 22 y (range 5–51); mean (SD) FEV1 of 57% (22); 32% F508del homozygous and 46% heterozygous]. Overall fungal colonization was: 35% yeasts, 4% moulds and 2% yeasts + moulds. *Candida albicans* (53%) and *C. parapsilosis* (35%) were the most common yeasts and were higher in adults than in children (85% vs. 15% and 68% vs. 32%; respectively). Other yeasts were: 4% *C. guilliermondii*, 3% *C. lusitaniae*, 3% *C. glabrata*, 2% *C. tropicalis*, 2% *Debaryomyces hansenii*, 1% *C. metapsilosis*, and <1% *C. robusta*, *C. dublinensis* and *Trichosporon asahii*. Frequency of moulds was 10.5%: *Exophiala dermatitidis* (6%), *Aspergillus fumigatus* complex (3%) and *Scedosporium apiospermum* (1.5%). Co-colonization of ⩾2 fungi was 31%, mainly *C. albicans* plus *C. tropicalis* and *E. dermatitidis*. Yeast colonization was higher in patients carrying *S. aureus*, but no association was found with *P. aeruginosa*.
Conclusion: A high diversity of fungal species was observed, being *C. albicans* and *C. parapsilosis* the most frequently recovered. Co-colonization was mostly detected among *Candida* species. *S. aureus* seems to be associated with *Candida* spp.

103 'A mushrooming problem or not' − prevalence of fungal isolation at the All Wales Adult CF Centre (AWACFC)

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Background: Bacterial colonisation in CF is well researched. There is a growing interest in the prevalence and significance of fungi isolates from CF patients. We aimed to establish the prevalence of fungal infection in patients attending the AWACFC and whether there is a correlation to pathology and respiratory decline.
Method: Patient sputum results over a 3 year period were reviewed to determine fungal prevalence. FEV_1% predicted, sex, age and *Pseudomonas* isolation was also gathered from patient records to ascertain any correlation with fungal isolation and any deterioration in lung function.
Results: 238 (135 males) patients with mean±SD age and FEV_1% of 28.9±10.2 years and 66.9±25.4% respectively. 151 of 238 (63%) cultured *Pseudomonas* and these had lower FEV_1% than those not culturing *Pseudomonas* ($p < 0.001$). 127 of 238 (54%) had positive *Candida* species and 61 (26%) had cultured *Aspergillus* species. There was no difference in age or sex of those positively culturing *Candida* species or *Aspergillus* ($p > 0.05$) compared to those who were negative, but the FEV_1% was lower in those culturing *Candida* or *Aspergillus* ($p < 0.001$). *Candida* and *Aspergillus* were cultured more frequently in patients who are colonised with *Pseudomonas* ($P < 0.001$). The other fungal species most commonly identified were *Scedosporium* (7), *Penicillium* sp. (8) and *Exophiala* sp. (7).
Conclusion: Fungi were cultured more frequently than we had anticipated. Their presence seemed to be associated with the presence of *Pseudomonas* and lower FEV_1%. The nature of this association is unclear and warrants exploration.

104 High prevalence of *Aspergillus* spp. in a reference CF center in Brazil: an agent that should not be neglected?

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Objectives: Investigate the presence of opportunistic fungi in CF patients attended by a referral center in Brazil.
Methods: A review on the microbiological cultures from respiratory tract of 212 confirmed CF patients on the period of 2002–2013 from the Mycology laboratory database. The patients were categorized by gender and age group and the most frequent fungi species were researched.
Results: In 12 years, 53 patients (194 samples) presented at least one positive sputum culture for fungus, 25% when considered the total of patients analyzed, being 28 female and 25 male and on average 26.3 yo (9–81). The highest percentage of positive culture was concentrated in the 16–30 yo range (54.7%; 29 patients), with 18.9% for the range of 0–15 yo and 26.4% for >30 yo. For the positive patients, 43% had three or more positive samples and 87% of them were >15 yo. *Aspergillus* spp. were the most isolated fungi (98.1%; 52 patients) and 96% of the species identified was *A. fumigatus* and only 1 patient presented three samples of *Scedosporium apiospermum* (1.9%). Other fungi were considered contaminants and excluded. The FEV1 (%) for the group with ⩾3 positive samples for *Aspergillus* spp. and ⩽2 positive samples had no statistical difference.
Conclusion: We observed a very high percentage of all our CF patients with at least one positive sputum sample for *Aspergillus* spp. (25%) and a significant number (9.5%) with three or more positive samples and as expected concentrated in the group aged over 15 yo. The other genera of filamentous fungi are still rare. These data also suggests a high prevalence of ABPA that stimulated us to introduce a specific protocol for investigation.